Hemo-Force™

INTERMITTENT DVT PUMP

TIMER (HOURS)
BATTERY
mmHg
PRESS & HOLD
POWER
ALARM
SINGLE SLEEVE
CALF/THIGH SLEEVE
FOOT SLEEVE
Hemo-Force™
ALARM TROUBLESHOOTING GUIDE
Alarm Codes
Fault Type
Description
Troubleshooting
LO
Low Pressure
1. Leg pressure is less than set pressure or Foot pressure is less than 120 mmHg for 2 consecutive cycles.
2. Air hose is disconnected from garments.
1.Check connection between garment and air hose.
2.Check for leaks in the garments or air hose set and replace if faulty.
3.Turn the pump off and restart.
4.Refer to a professional for service if problem persists.
HI
High Pressure
1.Air hose is kinked.
1.Check air hose set for any kinks.
2.Check connection between air hose and pump unit.
3.Refer to a professional for service if problem persists.
GE
Garment Error
1.Garment is not connected to air hose during start up.
2.Garments are not fully deflated during each restart.
3.The initialization process has detected an inconsistent garment configuration.
4.The initialization failed due to a possible blockage in air hose/garment connectors.
1.Attach garments to air hose and restart.
2.Ensure garments are fully deflated before restart.
3.Check garment configuration and restart.
4. Check connectors for any blockage and restart.
5. Refer to a professional for service if problem persists.
F
System Failure
1.Pressure is greater than set pressure after two inflations.
3.Electrical malfunction.
1.Check air hoses connections.
2.Turn the pump off and restart.
3.Refer to a professional for service if problem persists.
WARNING
If pain, irritation, numbness, swelling, or redness occur discontinue use and contact your healthcare professional.
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Introduction

The Hemo-Force is an Intermittent Pneumatic Compression System that counteracts blood stasis and coagulation changes; two of the three major factors that promote deep vein thrombosis (DVT) a potentially life threatening condition which can lead to pulmonary embolism.

The Hemo-Force is a non-invasive mechanical prophylactic system that massages the feet or legs in a wavelike, milking motion that promotes blood flow and deters thrombosis, helping to empty pooled or static blood from the valve cusps of the femoral vein. Fibrinolytic activity is increased, stimulating the release of a plasminogen activator. This therapy typically complements other prophylactic measures, such as antiembolic stockings and anticoagulants.

Some exciting features include:

- User friendly master control unit that is designed so that its functions are self-explanatory
- Power micro switch (ON/OFF)
- An alarm light displays a fault status with an audio alarm and LED display
- LED display that can monitor errors, statuses and pressure values of the device
- Timer indicator that reflects each hour of compression
- A membrane button (RESET) that causes a counter to take the state corresponding to a specified initial number
- Battery indicator that can show remaining battery status
- Unique hanging bracket that provides easy attachment

Intended Use

The system consists of an air pump and single-patient-use compression sleeve – one for the foot, one for the calf and one for the thigh. The air pump and compression sleeve may be used on one lower extremity. If the air pump is used simultaneously on both lower extremities, it is important that the identical sleeve type be used on both legs (i.e. foot sleeve with foot sleeve, calf sleeve with calf sleeve, or thigh sleeve with thigh sleeve). The inflation pressure settings are pre-set by the manufacturer and cannot be changed. The compression level for the foot sleeve is 120mmHg. The compression level for the calf and thigh sleeve is 40mmHg. The sleeve inflates and maintains compression for 12 seconds. Then, the sleeve deflates for a period of 48 seconds. As the sleeve inflates, it compresses the foot, calf or thigh which augments venous blood flow, thereby reducing stasis. This process also stimulates fibrinolysis; thus, reducing the risk of early clot formation. Regularly check the system while in use, assuring pump operation and sleeve fit. Please note: It is **NOT RECOMMENDED** that patients with the following conditions use this product without consulting with a physician.

Contraindications

The use of the Hemo-Force IPCS is **NOT RECOMMENDED** in the following conditions:

1. Severe congestive cardiac failure
2. Severe arteriosclerosis or other ischemic vascular disease
3. Extreme deformity of the limbs
4. Known or suspected deep vein thrombosis
5. Known or suspected pulmonary embolism
6. Any local condition in which the sleeves would interfere: i.e.
   a. Gangrene
   b. Dermatitis
   c. Untreated or infected wounds
   d. Recent skin grafts

Warnings and Cautions

1. **Federal law restricts this device to sale by or on the order of a physician.**
2. Keep the pump and sleeve away from sharp objects.
3. If pain, irritation, numbness, swelling, or redness occurs discontinue use and contact a healthcare professional.
4. The Hemo-Force IPCS should always be used in conjunction with hospital policy
5. Keep the pump and sleeve away from sources of liquid and open flames.
6. The control unit should only be repaired by an authorized professional.
7. Do not drop the control unit or store it in direct sunlight or extreme cold conditions.

Cautions

Do not use the Hemo-Force IPCS where increased venous or lymphatic return is not desired. The Hemo-Force IPCS Intermittent Compression System could be contraindicated and should not be used by persons with known or suspected deep vein thrombosis, pulmonary edema, congestive heart failure, severe arterio-sclerosis, thrombophlebitis, or active infection. Do not use on persons with painful and sensitive extremities, where the sleeve will interfere with gangrenous limbs, on persons with vein ligation or recent skin grafts, or extreme deformity of the leg.

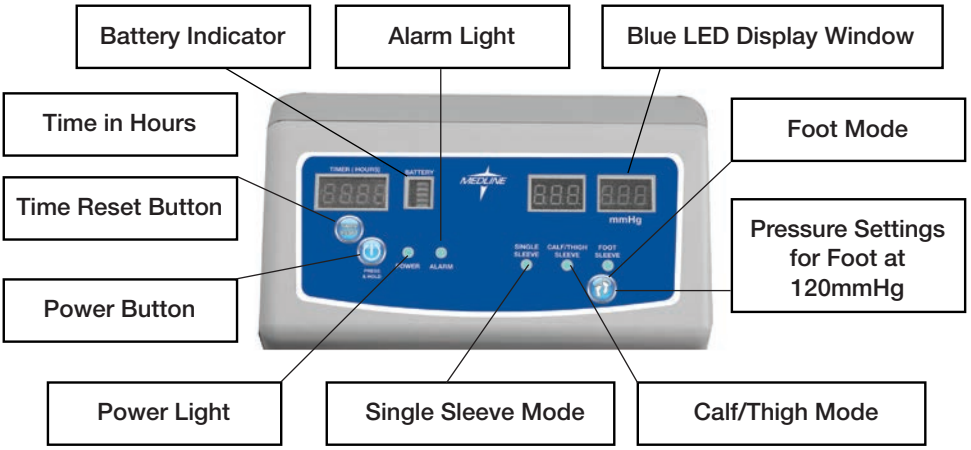
NOTE: If you are unsure of any contraindications please refer to the patient's physician before using the Hemo-Force IPCS Intermittent Pneumatic Compression System.

General Safety

These usage and safety guidelines are **IMPORTANT!** Please follow them carefully.

1. It is recommended that the following guidelines be used whenever the system is being stored or transported to another location:
   - Temperature limitations: 40°F ~ 140°F (5°C ~ 60°C)
   - Relative humidity: 30% ~ 75%
2. Carefully unpack the contents of the pump package.
3. Always connect the master control unit to a proper power source.
4. Check the power cord and plug for abrasions and excessive wear.
5. Plug in the unit and verify air flow from the hose connection port.
6. All MDS**INT and MDS6**SQ sleeve materials meet Class 1 Normal Flammability as defined in CPSC 16 CFR Part 1610.

Control Panel Features



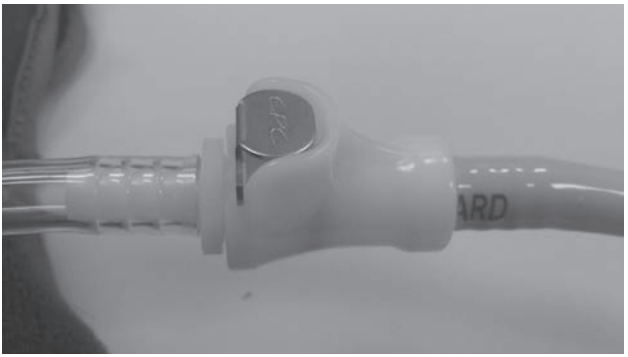
Operating Instructions

The Hemo-Force was designed to be easily set up. The following steps should be followed. Please read this instruction manual in its entirety before setting up.

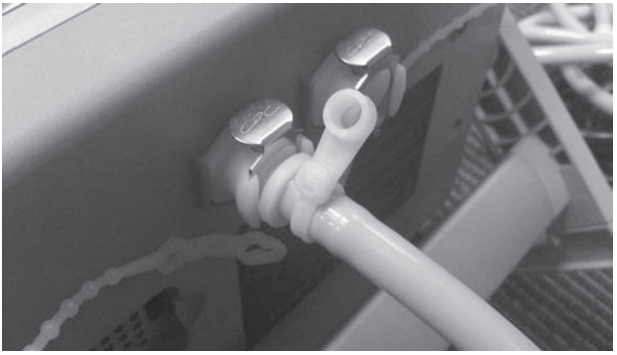
1. Once the pump and sleeves have been removed from their packaging, plug the pump into an electrical outlet. **DO NOT TURN ON YET.**
2. Position the pump on any flat surface or suspend the pump at the foot of the bed using the hooks. Do not hook on a slanted or curved surface.
3. Measure patient's calf/foot/thigh circumference at the widest point to ensure proper fit.

4. Application of the calf and thigh sleeve(s).
   a. Sleeves come in identical pairs and may be used on either leg.
   b. When using dual sleeves the identical sleeve type (same model) must be used on both legs. Sleeve combinations are calf and calf, thigh and thigh or foot and foot. Do not use in any other combination.
   c. Unfold the sleeve and lay the unfolded sleeve on a flat surface with the foam lining facing up.
   d. Position the sleeve at the appropriate ankle or knee landmark.
   e. Place the patient's leg on the sleeve lining, position the back of the knee over the popliteal opening in the case of thigh high sleeves.
   f. Fasten the sleeve securely with the Velcro® fasteners starting at the ankle and then moving to the calf and/or thigh. Secure with tabs starting at the bottom tab marked 1, moving upwards to tab 2 then 3, etc. Check that none of the Velcro flaps hang off the end of the sleeve (entirety of Velcro area is secured to the sleeve). The sleeve should fit securely but not tightly around all parts of the patient's leg. Confirm sleeve is properly sized by checking that the index line falls between the range markers. Follow the instructions and select the next size up or down if the index line falls out of range.
   g. Use the "two-finger" rule to check that the correct fit is used. Insert 2 fingers horizontally (with palm up and both fingers touching the patient's leg) in between the sleeve and the patient. This practice should be done at both the top and bottom of the sleeve.
   h. Using the same procedures apply the second identical model sleeve if needed. If only one sleeve is to be used, simply leave the unused air outlet on the pump free (no air hose attached).
5. Application of the foot sleeve(s).
   a. Foot sleeves come in identical pairs and may be used on either foot.
   b. When using dual foot sleeves the identical sleeve type (same model) must be used on both legs. Do not use in any other combination. Place the sleeve on the patient's foot ensuring the Velcro attachments are visible.
   c. Ensure a snug fit, by placing two fingers around the back of the sleeve to ensure the sleeve is not too tight. Routinely inspect the patient's feet once compression commences.
   d. Using the same procedures, apply the second identical model sleeve if needed. If only one sleeve is to be used simply leave the unused air outlet on the pump free (no air hose attached).
6. Air hose(s) are required to connect the sleeve(s) to the pump and are provided separately. Attach the sleeve(s) to the air hose(s) using the white snap lock connectors. Each tube has a male end connector at one end and a female connector at the other. The female end (large white connector) will fit to the male

end (small white connector) on the sleeve. Make certain that a click sound is heard to ensure a proper connection. See the image below:



7. Attach the other end(s) of the air hose(s) (male end) to the large white female connector(s) on the pump. Make certain that a click is heard with each snap lock connection. If you need to disconnect the tubing, press the tab on large white (female) connector and pull apart. See the image below:



8. Press and hold the power button to turn pump on when air hose(s) and sleeve(s) are properly connected.

9. Pump will start initialization process lasting approximately 10 seconds.

10. The pump will automatically detect single/dual identical model of sleeve(s) during the initialization process and will automatically default to the calf/thigh pressure setting.

11. The pump can be manually switched to foot therapy by pressing “FOOT” indicator for 5 seconds while pump is in the initialization step. An “Ft” will be indicated in upper display window when foot therapy is activated. Use the same operational procedure to switch back to calf/thigh therapy.

12. To activate the timer, turn the pump on and timing will commence.
The timer reflects each hour of compression. When compression is interrupted i.e. the patient is removed from therapy, the timer will suspend timing until the patient is reconnected to therapy and therapy is continued.

13. To reset the timer press “RESET” for 5 seconds and it will reset itself.

14. To turn pump off, hold the power button for 5 seconds.

15. To disconnect device remove plug from electrical outlet.

16. Be sure battery is installed in the back side of the device to avoid an interruption in therapy due to power failure.

17. Respond to the instrument alarms appropriately and refer to troubleshooting guide on pump (page 28 of this manual).

18. To remove the sleeves, press the tab on large white (female) connector and pull apart.

Recommendations during operation

• Avoid placing the tubing and/or any connections or components under the patient as this may negatively impact the effectiveness of the pump and/or cause a skin integrity issue for the patient

• Make sure that there are no kinks in the tubing and that the connectors are properly locked.

• Never apply or remove the sleeves while inflated as this may cause damage to the sleeve.

• The parts and/or accessories supplied are specifically designed for use with Hemo-Force IPCS control unit. Use of other products in conjunction with the system is not recommended.

Alarms and indicators

Indicator Light: Green	Illuminated to indicate power on
Indicator Light: Amber	Flashing to indicate a fault has been detected follow by an audio alarm
Indicator Light: Blue	Flashing indicates initialization in process for 10 sec and upper display window showing (Int) illuminated indicates unit is operational
Blue LED Display	Upper display indicates therapy selected for Calf/Thigh (LEG) or FOOT (Ft). Lower display indicates pressure delivered to each chamber of compression and alarm status for low pressure (LO), high pressure (HI), sleeve error (GE) and fault (F).
Timer	Indication of therapy time in hours from commencement of therapy per patient

Alarm Codes	Fault Type	Description	Troubleshooting
LO	Low Pressure	• Leg is less than 40mmHg pressure; foot pressure is less than 120mmHg after 2 consecutive cycles. • Air hose disconnected at sleeve.	• Check sleeve application to ensure proper fit. • Check for leaks in the sleeves or air hose set and replace if faulty. • Turn the pump off and restart. • Refer to a service professional if problem persists.
HI	High Pressure	• Air hose is kinked.	• Check air hose set for any kinks. • Refer to a service professional if problem persists.
GE	Sleeve Error	• No sleeves attached during start up. • Sleeves are not fully deflated during each restart. • The initialization process has detected an inconsistent sleeve configuration. • The initialization failed due to a possible blockage in air hose/sleeve connectors.	• Attach sleeves to pump and restart. • Ensure sleeves are fully deflated before restart. • Check sleeve configuration and restart. • Check connectors for any blockage and restart. • Refer to a professional for service if problem persists.
F	System Failure	• Pressure is greater than set pressure after two inflations. • Electrical malfunction.	• Check air hose connection. • Turn the pump off and restart. • Refer to a service professional if problem persists.

Battery Backup System

• This device has a Lithium Ion battery backup system. The device constantly monitors the outer AC electric power supply. In the case of a power failure the pump will switch to battery operation automatically.

• The “Battery Indicator” indicates the battery capacity status as illustrated.

• Under normal conditions a fully charged battery will last approximately 4 hours of continuous operation. It may take up to 16 hours to fully charge a depleted battery.

Cleaning

The pump: The casing of the pump is manufactured from ABS plastic which is a combination of different resins that is hard and durable through a broad range of temperatures. If soiled, it can be wiped down with a sodium hypochlorite solution to dilution of 1000ppm or with any EPA approved, hospital grade cleaner.

The control unit (face) should also be cleaned weekly using a damp soft cloth and mild detergent. (Switch off the electrical supply to the pump and disconnect the power cord from the main supply before cleaning and inspection)

The Sleeve: It is a single patient use sleeve. Do not wash or clean, discard after use.

Caution

- Do not use phenol based cleaning solutions.
- Switch off the electrical supply to the pump and disconnect the power cord from the main supply before cleaning and inspection.

Waste Disposal

This Product has been supplied from an environmentally aware manufacturer that complies with the WEEE.

This product may contain substances that could be harmful to the environment if disposed of in places (landfills) that are not appropriate given state, local and/or federal regulations. Please be environmentally responsible and recycle this product through your recycling facility at its end of life.

Electromagnetic Compatibility

Electric devices may interact due to electro-magnetic radiation. We recommend a safety distance of at least 3.3 feet (1 meter) especially for sensitive equipment.
Upon request, we will provide you with a table for more detailed information.

Recommended separation distances between portable and mobile RF communications equipment and the Hemo-Force IPCS

The **Hemo-Force IPCS** is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the **Hemo-Force IPCS** can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the **Hemo-Force IPCS** as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1,2 \sqrt{P}$	80 MHz to 800 MHz $d = 1,2 \sqrt{P}$	800 MHz to 2,5 GHz $d = 2,3 \sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Article I. Guidance and manufacturer's declaration – electromagnetic emissions

The Hemo-Force IPCS is intended for use in the electromagnetic environment specified below.
The customer or the user of the Hemo-Force IPCS should ensure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The **Hemo-Force IPCS** uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment
RF emissions CISPR 11	Class B	The **Hemo-Force IPCS** is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Article II. Guidance and manufacturer's declaration – electromagnetic immunity			
The **Hemo-Force IPCS** is intended for use in the electromagnetic environment specified below. The customer or the user of the **Hemo-Force IPCS** should ensure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % UT (>95 % dip in UT) for 0,5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) <5 % UT (>95 % dip in UT) for 5 sec	<5 % UT (>95 % dip in UT) for 0,5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles <5 % UT (>95 % dip in UT) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the **Hemo-Force IPCS** requires continued operation during power main interruptions, it is recommended that the Hemo-Force IPCS be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE UT is the a.c. mains voltage prior to application of the test level.			

Article III. Guidance and manufacturer's declaration – electromagnetic immunity

The **Hemo-Force IPCS** is intended for use in the electromagnetic environment specified below.
The customer or the user of the **Hemo-Force IPCS** should assure that it is used in such an environment.

Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2,5 GHz	3 Vrms 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the Hemo-Force IPCS, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** d = 1,2 $\sqrt{P}$ d = 1,2 $\sqrt{P}$ 80 MHz to 800 MHz d = 1,2 $\sqrt{P}$ 800 MHz to 2,5 GHz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, a should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with the following symbol:

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the **Hemo-Force IPCS** is used exceeds the applicable RF compliance level above, the Hemo-Force IPCS should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the **Hemo-Force IPCS**.
b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Technical Specifications- The Pump

Model No.	MDS600INT
Compression Type	Intermittent
Size	12.6” x 4.3” x 7.7”
Weight	2.2 Kg (without Power Cord)
Pressure Range	Calf/Thigh Sleeve: 40mmHg +10/-5mmHg. Foot Sleeve: 120mmHg +10/-5mmHg.
Input Rating	AC 100-240V 50/60Hz
Fuse Rating	1A 250V
Classification	Class I Type BF Not AP or APG type Double Insulated
Operation Humidity	30-75%
Operation Temperature	15 - 40°C
Applied Part	Sleeve and Air Tube
Cycle Time	60 Seconds
Inflation Time	8 Seconds
Hold Time	4 Seconds
Deflation Time	18 Seconds
Display Type	LED
Alarm Type	Audio and Visible
Hook attachment	Yes
Owners Manual	Included
Battery Pack Model. (optional)	MDS600BAT

The Sleeves and Tubing

Model name	**Size**	**Sizes**
MDS601PD	Calf, Small	Up to 12”
MDS601MD	Calf, Medium	12” to 18”
MDS601LD	Calf, Large	18” to 22”
MDS601BD	Calf, Bariatric	22” to 32”
MDS620	Foot, Medium	Up to 13” instep circumference
MDS620L	Foot, Large	13”-16” instep circumference
MDS630SD	Thigh, small	Up to 22”
MDS630MD	Thigh, Medium	22” to 29”
MDS630LD	Thigh, Large	29” to 36”
MDS630BD	Thigh Bariatric	36” to 42”
MDS610S	Tubing, Intermittent	5’
MDS610L	Tubing, Intermittent	10’

Symbols Used

	Type BF Applied Part
	Manufacture
	Date of Manufacture
LOT	Batch Code Ex. YYMMDD01XX
SN	Serial Number
	Caution

Servicing and Maintenance

In the event of a problem occurring, contact your Medline Sales representative for servicing or replacements.

Servicing Protocol

A) Initial Assessment (Qualitative Check)

Item	Qualitative Tasks	Pass	Fail	Service
1	Plastic Housing / Chassis			
2	Mount / Fasteners			
3	Hooks			
4	AC Plug / Receptacles Outlet			
5	Strain Relief Bushing			
6	Control Panel			
6.1	Power Micro Switch (ON/OFF)			
6.2	Mode Membrane Button (Foot)			
6.3	Membrane Button " Reset" for timer reset			
7	Function Status LED Light Indication			
7.1	Power Light (Green)			
7.2	Alarm Light (Amber)			
7.3	Single Sleeve Indicator (Green)			
7.4	Calf/Thigh Sleeve Indicator (Green)			
7.5	Foot Indicator (Green)			
8	LED Situation Display			
8.1	Status(LEG/ FT) & Pressure Value (40/120)			
8.2	Error Information Display (LO, HI, GE, F)			
8.3	Battery Indicator			
8.4	Timer Counter Display (unit: hour(s))			
9	Fault Status Audio Alarm			
10	Labeling			

B) Initial Assessment (Quantitative Check)

Item	Qualitative Tasks	Pass	Fail	Service
1	Ground Resistance less than < 0.2 ohm			
2	Max Leakage Current less than < 0.5 mA			
3	Pressure Test			
3.1	Minimum Pressure (LEG) 40 +10/ -5 mmHg			
3.2	Maximum Pressure (FT) 120 +10/ -5 mmHg			
4	Flow-rate (FT)☐6 L/min			
5	Battery Pack (recharge / discharge) 16hr / 4hr*			

**Optional equipment*

C) Initial Assessment Procedure

Item	Tasks
1	Check the Plastic Chassis / Housing appearance
2	Check the Mount / Fasteners
3	Check the Hooks
4	Check the AC Plug / Receptacles Outlet
5	Check the power supply unit (Including: Fuses and Strain Relief Bushing)
6	Press the Power Micro Switch, the Power Light should illuminate and pump is activated.
7	Follow the alarm troubleshooting guide on the medical device and remove the basic problems.

WARNING

The control unit must be disconnected from the power supply before any maintenance or servicing work is carried out

D) Open Control Unit and check that:

1	Wiring and terminations are secure
2	Tubing is completely intact and secure
3	Components' fastenings are secure
4	General condition inside is clean

If any items appear to be damaged and/or defective condition, replace with appropriate spare part and record action. Re-assemble pump unit completely and run for a minimum of 1 hour and check calibration. Adjust if required.

Operational Maintenance

Routine checks are recommended to be carried out for each time the system is in use. For the control unit:

1. Inspect the control unit for any damages to case, controls, and connections.
2. Inspect power cord for any damages, replace if necessary.
3. Test all functions.

Preventative Maintenance

Preventive maintenance should be carried out every 12 months by checking that:

1. Case is free from debris or dust
2. Electrical connections are secure and completely insulated
3. Tubes are properly secured and are free from kinks
4. Proper wiring is intact
5. Replace Air Filter (MDSBA106011)

General Disassembly and Parts

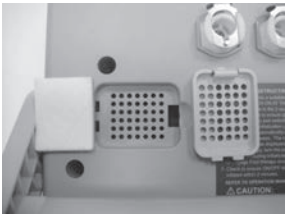
Cleaning and replacing air filter

1. Identify the air filter module on the back the device.

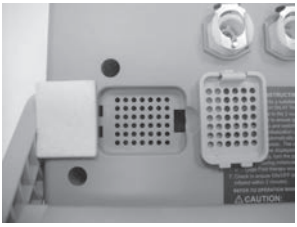
2. Press the side lock to release the cap.

3. Clean the cap with a soft brush.

4. Remove the filter and clean the bottom with a soft brush.



5. Insert the new filter.

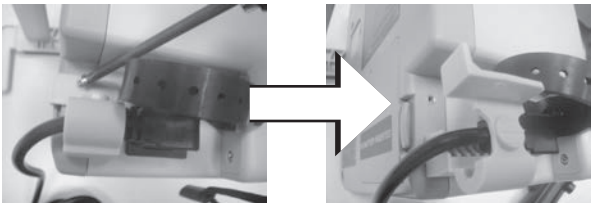


6. Re-assemble new components in reverse order.

Battery pack replacement

1. Identify the battery back on the back of the device.

2. Unscrew the screw to release the cable cover.



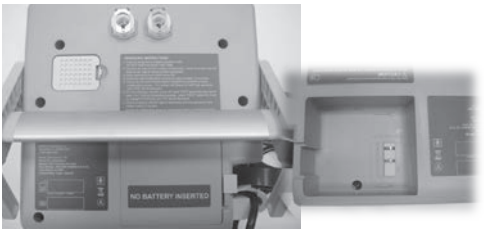
3. Press the side lock to release the battery pack.

4. Remove the battery pack and check the socket for dirt and/or debris.

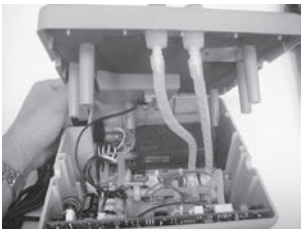
5. Inspect the new battery and re-assemble new components in reverse order.

Opening the case/interal inspection

1. Place the device on a soft surface with the front case facing down.
2. Perform “Battery Pack Placement” procedure 1-4 to remove the battery pack.
3. Unscrew the 6 pan head screws.

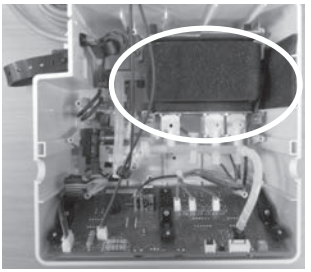


4. Open the case and keep the screws in a safe place.
5. Disconnect 2 air tubes from the valve.
6. The control unit is now ready for internal inspection

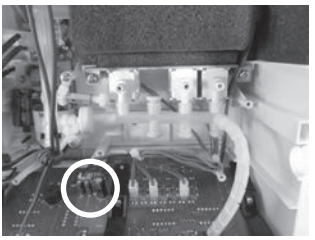


Compressor replacement

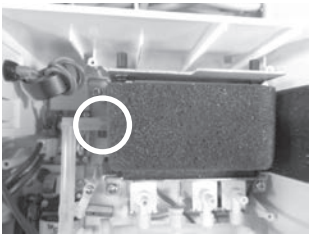
1. Identify the compressor internally.



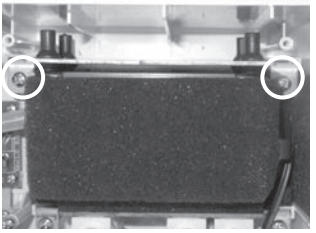
2. Unplug the power connector.



3. Pull out the air tubes between compressor and valve.



4. Unscrew and remove the 2 screws securing the compressor.

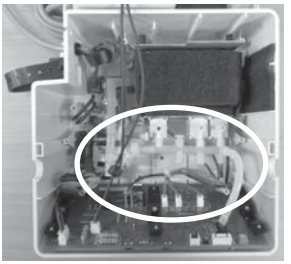


5. Remove the whole compressor set out of the case.

6. Re-assemble new components in reverse order.

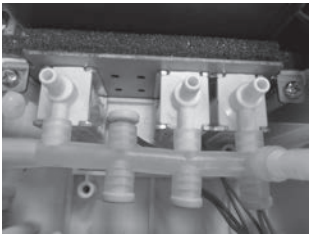
Solenoid valve set replacement

1. Identify the solenoid valve set internally.

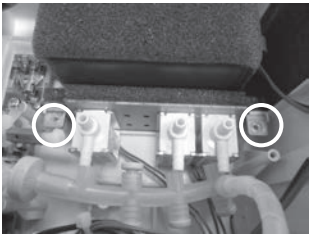


2. Unplug the valve power cable from PCB board.

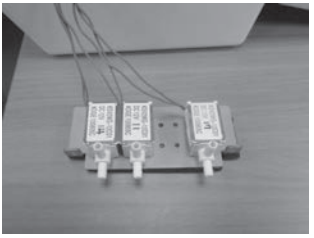
3. Disconnect the air tube from the valve.



4. Unscrew and remove the 2 screws.



5. Remove the whole valve set.

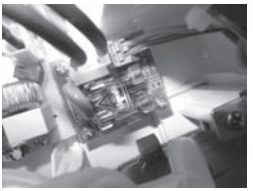


6. Re-assemble new components in reverse order.

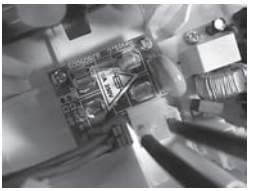
Fuse replacement

1. Identify the fuse module.

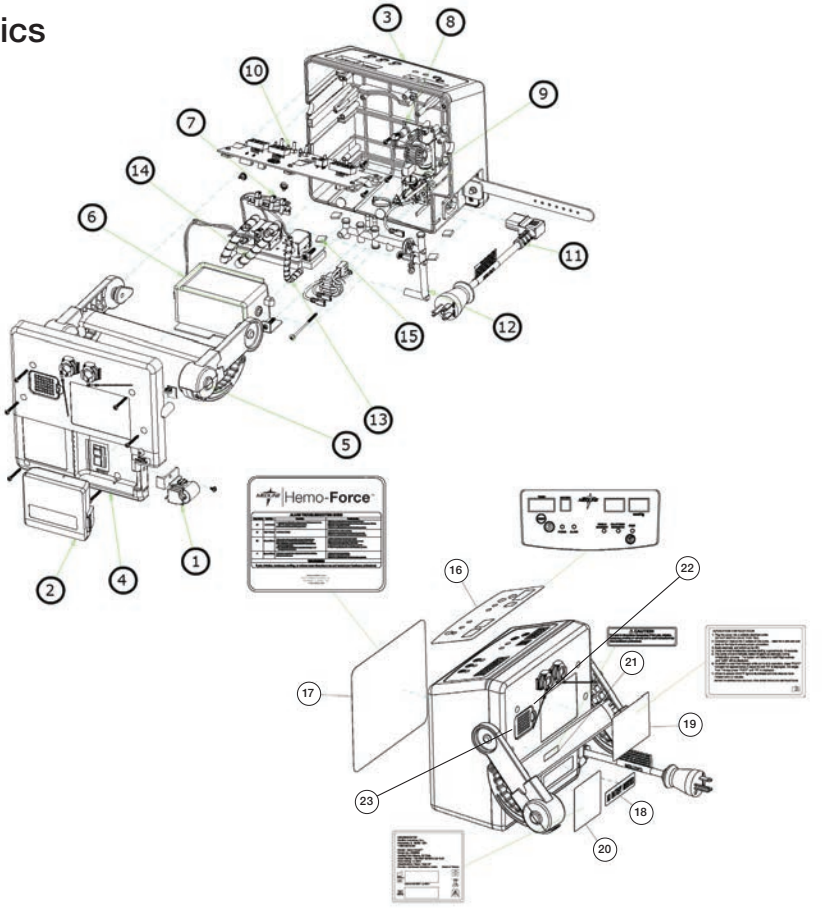
2. Remove the fuse(s).



3. Insert the new fuse(s).

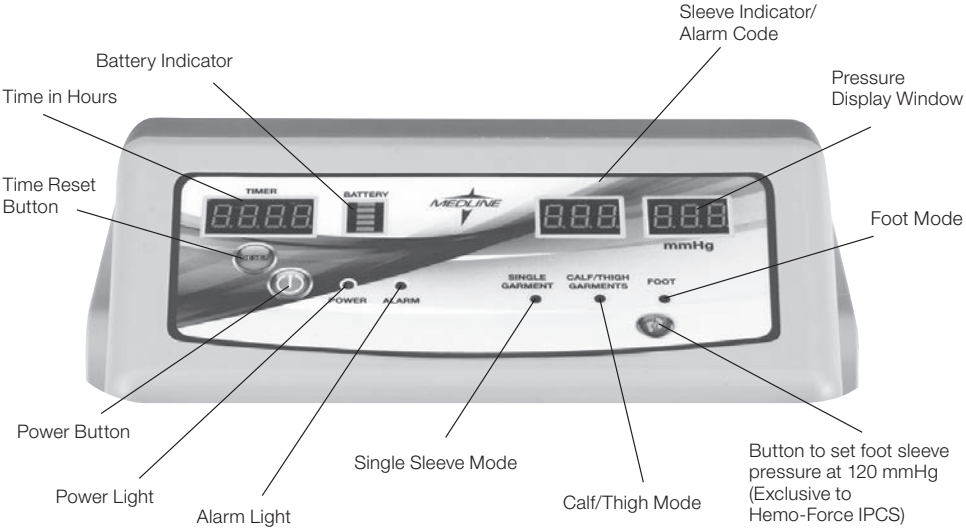


Schematics



Medline Item Number	Product Name/Description	Schematic
MDSBA106035	Cable Cover	1
MDSBA106083	Battery Box w/Label	2
MDSCCA01028	Front Case Assembly	3
MDSCCA02042	Rear Case Assembly	4
MDSCCB04002	Hook Set Spring Loaded	5
MDSCCC56002	M13 Compressor Set	6
MDSCCD05004	Solenoid Valve Set	7
MDSCCF06015	PCB, Power Board	8
MDSCCF06020	PCB, Fuse Board, CI-88	9
MDSCCF12050	Control PCB Set	10
MDSCH40020	120V Power Cord	11
MDSCML20045	Tube Set For Compressor	12
MDSCML20046	Pressure Tube Set	13
MDSCML20047	Air Tube Set	14
MDSBF004001	Rubber Foot	15
MDSAL200208	Label, Front Panel For Hemo-Force IPC	16
MDSAL202024	Label, Alarm Troubleshooting Guide For IPC	17
MDSAL204230	Label, Caution	18
MDSAL204220	Label, Instructions for IPC	19
MDSAL204221	Manufacturer label for IPC	20
MDSAL204119	Label, No Battery Inserted	21
MDSAF103002	Zip Ties	22
MDSBA106011	Air Filter	23
MDSAL300160	Manual, Intermittent	

Please reference the Medline item number when ordering parts.


Sleeve Indicator/
Alarm Code
Battery Indicator
Time in Hours
Pressure
Display Window
Time Reset
Button
Foot Mode
TIMER
BATTERY
MEDLINE
mmHg
SINGLE
GARMENT
CALF/THIGH
GARMENTS
FOOT
POWER
ALARM
Power Button
Power Light
Alarm Light
Single Sleeve Mode
Calf/Thigh Mode
Button to set foot sleeve
pressure at 120 mmHg
(Exclusive to
Hemo-Force IPCS)

Pressure Adjustments and Tests

1. Make sure the power source is 120 Volt 60 Hz. Use a power regulator to stabilize the power voltage in order to increase accuracy of pressure setting.
2. Attach the test kit to pump and manometer.
3. Press the Power Micro Switch.
4. Perform the pressure test procedure from Minimum Pressure (LEG) to Maximum Pressure (FT).

Minimum Pressure Test

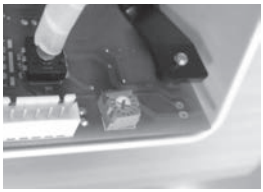
1. Press Mode Membrane Button (CALF/THIGH SLEEVES) and LED Situation Monitor will display “LEG”.
2. Check the pressure is 40 mmHg (+10/-5 mmHg).

Maximum Pressure Test

1. Press Mode Membrane Button (FOOT) and LED Situation Monitor will display ”Ft”
2. Check the pressure is 120 mmHg (+10/-5 mmHg).

Pressure Adjustment Procedure

1. Open the case and identify pressure regulators.



2. Pressure adjustment can be adjusted with a Philips screwdriver. Pressure can be adjusted by clockwise/anti-clockwise turns to decrease/increase the pressure respectively.

Troubleshooting

Problem	Inspection Procedure	Possible Solution
Pump not functioning	1. PCB terminals are not secured or incorrectly connected 2. PC board malfunctions 3. Fuse(s) burn out	1. Check terminals 2. Replace PC board 3. Replace fuse(s)
Pump functioning but no air output	1. Bello diaphragm in compressor breaks down 2. Check for loose air tubes connection inside Control Unit. 3. Coil inside compressor burn down	1. Replace diaphragm 2. Secure tubing inside the pump 3. Replace coil
Alarm light doesn't go away after the sleeve is fully inflated	1. Alarm light breaks down 2. Function indicator break down	1. Replace low pressure light 2. Replace PC board

Warranty

Medline Industries, Inc. guarantees that this equipment is free from defects in materials and workmanship. Our obligation under this warranty is limited to the repair of equipment returned to the place of purchase within 12 months of delivery date. We agree to service / adjust any equipment returned, and to replace or repair any part that is proven to be a warranty defect, at no charge.

This warranty excludes equipment damage through shipping, tampering, improper maintenance, carelessness, accident, negligence or misuse, or products that have been altered, repaired or dismantled other than with the manufacturer's written authorization and by its approved procedures and by properly qualified technicians.

In no event shall Medline products be liable for any direct, indirect or consequential damages or losses resulting from the use of this equipment.

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